NATIONAL SCIENCE FOUNDATION
ARLINGTON, VA 22230

Engineering Directorate
Division of Design, Manufacture & Industrial Innovation

Report of the Advisory Committee for Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) Programs

for the Meeting on
15-17 June 2004

A. INTRODUCTION

The National Science Foundation (NSF) Advisory Committee (AdComm) for the Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) Programs met 15 - 17 June 2004 at NSF Headquarters facility in Arlington, VA. The meeting was held in Conference Room 1235 on 15 and 16 June 2004, and in Room 580 on 17 June 2004.

Advisory Committee members in attendance were:

Dr. Chris Busch (Chairman)
Dr. Sudhir Bhagwan
Ms. Penny K. Pickett
Dr. David B. Spencer
Mr. Milton Stewart
Dr. E. Jennings Taylor
Dr. Carole A. Teolis
Dr. Lizette Velazquez
Dr. Billy M. Williams
Ms. Meg Wilson

Advisory Committee members absent:

Dr. Nariman Farvardin
Mr. Michael Sheridan
Ms. Jo Anne Goodnight

NSF representatives attending all or part of the meeting included:

Ms. Cheryl Albus, SBIR Program Manager
Dr. Errol Arkilic, SBIR Program Manager
Dr. John Brighton, Assistant Director, Engineering Directorate
Mr. Josh Chamot, Office of Legislative and Public Affairs
Mr. Ritchie Coryell, SBIR Program Manager
Dr. Juan E. Figueroa, SBIR Program Manager
Dr. Joe Hennessey, Senior Advisor, SBIR Program
Dr. Murali Nair, SBIR Program Manager
Dr. Kesh Narayanan, Director, Industrial Innovation
Dr. Sara B. Nerlove, SBIR Program Manager
Dr. Mike Reischman, Deputy Assistant Director, Engineering Directorate
Dr. T. James Rudd, SBIR Program Manager
Dr. Om Sahai, SBIR Program Manager
Dr. Winslow Sargeant, SBIR Program Manager
Dr. Rosemarie D. Wesson, SBIR Program Manager

NSF Triumph Technologies SBIR/STTR Project Team

Ms. Sonya Lucas, SBIR/STTR Project Manager
Ms. Donna Jackson, SBIR/STTR Program Analyst
Ms. La Tashia Stevens, SBIR/STTR Records Manager
Ms. Angela Gantt, SBIR/STTR Meeting Planner

Other Participants and Attendees

Mr. David Speser, Foresight
Ms. Joan Stewart, SBHTI
Ms. Carol Rabke, Dawnbreaker

B. ACTIVITIES SUMMARY

Tuesday, 15 June 2004

Kesh Narayanan opened the meeting. NSF representatives and AdComm members present introduced themselves and gave brief background statements.

John Brighton (NSF Assistant Director, Engineering Directorate) addressed the AdComm, and described the NSF organization and the Engineering Directorates role in it. He discussed briefly the plan to elevate the SBIR/STTR Program from the ENG/DMII Division to an Office reporting directly to the ENG Assistant Director (AD).

During the rest of the morning, Kesh Narayanan, Meg Wilson and Chris Busch reviewed the Committee of Visitors (COV) report from the 4-6 May 2004 COV meeting. After minor changes were suggested, the AdComm approved the COV report.

Three presentations were made by NSF SBIR/STTR Program Managers during a working lunch. James Rudd presented the status of MatchMaker, Winslow Sargeant reviewed the Manufacturing Innovation topic for the FY 2005 solicitation (Dec 2004 closing date), and Rose Wesson described the planned topics for a second 2005 and the 2006 solicitations.

Following lunch, Chris Busch presented the NSF/Engineering (ENG) SBIR Task Force Report and recommendations originally presented at the 20 May 2004 Engineering AdComm meeting. This Task Force included Chris Busch, Warren DeVries (DMII Division Director), Kristina Johnson (Chair, ENG AdComm), and Kesh Narayanan. The report concluded with the recommendation that the NSF SBIR/STTR Program report

directly to the ENG Assistant Director, and that NSF and ENG embrace the NSF SBIR/STTR Program to achieve the NSF "innovation" vision.

Jennings Taylor then reported on his participation in a National Science Board meeting on intellectual property, and related meetings. He also reported on opportunities for NSF SBIR/STTR partnerships with academia.

Josh Chamot (NSF Office of Legislative and Public Affairs) joined the AdComm meeting to discuss opportunities to publicize NSF SBIR/STTR success stories.

"Technology Highlights" were presented by Program Managers for NSF SBIR/STTR projects in the four "basic" topics: Biotechnology (BT); Electronics (EL); Information-based Technology (IT); and Advanced Materials, Manufacturing and Chemical Processes (AM).

The formal meeting adjourned at approximately 5 PM on this date.

Wednesday, 16 June 2003

Joe Hennessey reviewed background on assistance provided to Phase 1 grantees in the preparation of Phase 2 commercialization plans by two current contractors. Carol Rabke (DawnBreaker) and David Speser (Foresight) presented the approach to assistance provided by each of their companies. The AdComm and NSF SBIR/STTR representatives discussed the two presentations and approaches to commercialization assistance for the remainder of the morning.

During a working lunch, Kesh Narayanan led a discussion on three topics. First was possible commercialization assistance during Phase 2, a practice currently practiced by several other agency SBIR/STTR Programs. Second was possible collaboration with the NSF/EHR Directorate Centers of Research Excellence in Science and Technology (CREST) Program. Third was a discussion of the NSF DMII/SBIR/STTR Conference planned for Phoenix, AZ, 3-7 Jan 2005.

Kesh Narayanan announced Jennings Taylor as the incoming NSF SBIR/STTR AdComm chair. He will become chair beginning with the Jun 2005 AdComm meeting.

Beginning at about 2 PM, the AdComm held closed discussions and prepared a draft of its report for this meeting.

Thursday, 17 Jun 2004

The AdComm completed the final draft of its report on this meeting. Beginning at about 9 AM, the AdComm presented its report to John Brighton (Assistant Director for Engineering), Mike Reischman (Deputy Assistant Director for Engineering) and the NSF

SBIR/STTR Program Office team. Each of he items in Section C below was presented by AdComm members, and discussion followed.

During the presentation, John Brighton conveyed that he has selected Kesh Narayanan to head a team to prepare a strategy for the NSF Engineering Directorate. Kesh Narayanan discussed further this assignment later in the meeting.

The AdComm expressed its appreciation to John Brighton for listening to its recommendations (and those of the recent SBIR/STTR Program COV) on organization change for the NSF SBIR/STTR Program, and more importantly for taking action on these recommendations.

Kesh Narayanan announced that Dr. Sally Nerlove was receiving Director's award for her contributions to Equal Opportunity during this meeting period.

Kesh Narayanan discussed plans to celebrate Milt Stewart's long association with the SBIR Program and the NSF SBIR/STTR AdComm at the DMII/SBIR meeting in Phoenix in Jan 2005 as a farewell and a deserved recognition. Joan Stewart stated her activities, plans and desire to help make the Phoenix meeting a success.
Milt Stewart made closing comments on the need to measure commercialization contributions by the entrepreneurial community nurtured by the SBIR/STTR Program at all agencies. He also commented on the need for an AdComm to promote and support the national SBIR/STTR Program. Milt Stewart said he would send clippings to Kesh Narayanan and Chris Busch on international competition that underscores the need for the national SBIR/STTR Program. These clippings will be distributed to AdComm members upon receipt by Chris Busch.

The meeting adjourned at approximately 11:00 AM.

C. COMMENTS AND RECOMMENDATIONS

The items below are listed in the order of priority as viewed by the AdComm.

1. Comments on 2004 COV Report

The AdComm approved the COV report with minor amendments.

2. NSF SBIR/STTR Program Organization Change

The AdComm strongly supports the planned organizational change recommended by the NSF/Engineering SBIR Task Force and 2004 SBIR/STTR Committee of Visitors report. With this change, the SBIR/STTR Program will report through a newly created

Office reporting directly to the Assistant Director for the Engineering Directorate. We believe this change helps achieve the NSF goal of organizational excellence, especially given science and engineering scope of NSF SBIR/STTR Program as well as the magnitude and the relative size of the Program budget compared to other Engineering Division budgets.

The proposed organization change places the program where it needs to be to give the senior management oversight and control over its somewhat unique activities that must comply not only with the needs and standards of NSF, but also with regulations promulgated outside of the NSF and managed through SBA. Of perhaps equal importance, this newly proposed organizational structure better aligns the clear and long standing innovation mission of the SBIR/STTR program with the more recently articulated innovation mission and innovation emphasis of the Engineering Directorate.

3. SBIR/STTR Program Role in Achieving the NSF Innovation Vision

The AdComm believes the SBIR/STTR Program can make a major contribution to achieving the NSF "innovation" vision. This will be achieved in part through increased synergy between SBIR and NSF academic programs.

The AdComm believes that the SBIR Program provides a strong complement and supplement to the Engineering Directorate and to NSF. The SBIR Program provides an essential link to the applied research of the Engineering Directorate and a channel for moving innovations to the market: innovations that manifest the frontiers of knowledge supported by NSF.

A strong synergy exists between the SBIR Program, the Engineering Directorate and all of NSF. This includes the SBIR Program's attention to education, consistently high standards of applied advanced research, and overall innovation commercialization excellence. The AdComm further notes that the NSF SBIR/STTR Program, the Engineering Directorate and NSF in total, cover technology areas not addressed by other mission agencies and this strongly supports the NSF mission providing innovation and service to society.

The SBIR solicitation on Advanced Manufacturing is a superb example of an innovative approach to meet a crucial national need.

4. Resource Allocation and Processes

As reported by the COV, the AdComm is highly impressed with the excellent quality of the SBIR proposal review and award management given the considerable increase in quantity of SBIR proposals being submitted over the past few years. The AdComm is concerned that the proposal volume and program workload will continue to increase. The AdComm reinforces the COV recommendation for additional resources. The

AdComm requests that the SBIR Program management team provide their recommended approach to achieve additional efficiencies to handle the potential further increase in workload, and explore ways to properly match available resources with priority tasks.

The major element of concern that the AdComm has is that Program Managers cannot spend sufficient time mentoring grantees. The AdComm recommends that NSF critically evaluate the allocation and possible reallocation of its present resources to achieve more effective program management. An example action may be to provide contractor assistants to Program Managers to offload logistical work associated with panel formation and execution. The AdComm recommends that everything should be on the table for consideration.

5. Matchmaker

The AdComm recognizes major progress has been made in developing participation in MatchMaker by grantees, strategic partners, and investors. The AdComm recommends that the SBIR Program continue expanding MatchMaker.

The AdComm recommends that representative strategic participants and investors involved in MatchMaker be invited to the DMII/SBIR conference in Phoenix in Jan 2005.

6. Phase 2 Proposal Commercial Planning Assistance

The AdComm was pleased that the COV reported that Phase 2 commercialization plan quality significantly improved during the period from 2001-2003.

The AdComm recommends that NSF continue measuring the impact and quality of mentoring services provided through the survey described by Rose Wesson. In particular, assessments by Phase 2 proposal commercial reviewers should be collected in an appropriate way. The AdComm recommends that an assessment be made regarding the relative value of these contractors. The survey data should be redefined to develop conclusions regarding this value. This action may enable more optimal assignments of service providers to specific grantees. AdComm members agreed to assist Rose Wesson in conducting phone interviews.

The AdComm recommends that NSF review service provider performance periodically to insure adequate and consistent quality of mentors and portfolio managers.

7. Plans for Additional Commercial Planning Assistance

The AdComm strongly supports providing commercialization assistance during Phase 2. The AdComm recommends that all forms of assistance discussed during the AdComm

meeting be explored (e.g., regional venture forums, strategic partnering, LARTA, NASVF, SpringBoard Enterprises, etc.).

The AdComm discussed the concept of a mentor-in-residence at NSF to facilitate grantee-mentor relationships. The AdComm recommends that NSF consider this and other innovative concepts to enable effective commercial planning assistance.

8. Phase 2A Minority Assistance

The AdComm supports the SBIR participation with the NSF Centers of Research Excellence in Science & Technology (CREST) Program. This activity supports the AdComm's SBIR vision for synergy between the SBIR and academic programs.

9. Phoenix Meeting 3-6 January 2004

The AdComm recommends that a person similar to Patrick MacCarthy be found and placed on the agenda to discuss business/commercialization planning.

The AdComm also recommends that at least one full day be allocated for the AdComm meeting.

10. NRC Report Status

The AdComm recommends that NSF SBIR management prepare a report for NRC that presents it case for the value it brings to the SBIR Program and its impact. The AdComm believes that simply providing data as requested by NRC is not adequate.

11. Commercialization Tracking

The AdComm recognizes the organizational impact of Ritchie Coryell's retirement at the end of this year, and the critical need for ongoing assessment of the commercialization outcomes from SBIR investments by NSF. The AdComm believes that management should proactively provide an organizational structure that recognizes the criticality of this function to the long-term survival of the program.

The AdComm recommends that Ritchie Coryell prepare a final non-confidential report as well as a confidential report on his commercialization assessment activities before his retirement.

12. Closing Comments and Recommendations

The AdComm believes the NSF SBIR/STTR Program currently has an extraordinary opportunity to contribute to the overall mission of the Engineering Directorate and all of NSF, and to support the national movement toward “innovation.” We encourage the Program to make the most of this opportunity. The AdComm is proud of the Program record that demonstrates continuing innovation and exemplary best practices for SBIR/STTR Program management.

END OF REPORT